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EXAMINER
JARRETT, RYAN A

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SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

	Application No.	Applicant(s)
Office Action Summary	09/851,905	SONDERMAN ET AL.
	Examiner	Art Unit	
	Ryan A. Jarrett	2125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 January 2007*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,5,7-11,13,15,17-21,23,25,27-41,43,45 and 47-65* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5,7-11,13,15,17-21,23,25,27-41,43,45 and 47-65* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Claims 1, 3, 5, 7-11, 13, 15, 17-21, 23, 25, 27-41, 43, 45, and 47-65 are pending

in the application and are presented below for examination.

Claim Objections

Claims 8, 18, 28, and 48 objected to because of the following informalities:

Each of the aforementioned claims depends on a cancelled claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 3, 5, 7-11, 13, 15, 17-21, 23, 25, 27-41, 43, 45, and 47-65 are rejected

under 35 U.S.C. 112, first paragraph, as failing to comply with the written description

requirement. The claim(s) contain subject matter which was not described in the

specification in such a way as to reasonably convey to one skilled in the relevant art that

the inventor(s), at the time the application was filed, had possession of the claimed

invention.

Regarding claims 1, 11, 21, 41, and 51, applicant recites, "modeling a

dependence of the deposition rate based upon a target life of the sputter target"

(emphasis added). There is no support in the original disclosure for this limitation. Contrast this with original claims 2, 12, 22, 31 (and current), 42, and 52, which recited "modeling a dependence of the deposition rate on a target life of the sputter target" (emphasis added). The original support lies herein. Therefore, the limitation "based upon" should be changed to "on" in claims 1, 11, 21, 41, and 51.

Regarding claim 61, applicant recites, "modeling said dependence of the deposition rate [on at least one of the deposition plasma power and deposition time] being based upon a target life of the sputter target". This limitation was added in two parts in the amendments filed 05/06/2003 and 08/29/2003. There is no support in the original disclosure for this limitation. Contrast this with original claims 2, 12, 22, 31 (and current), 42, and 52, which recited "wherein monitoring the consumption of the sputter target to determine the deposition rate of the metal layer during the metal deposition processing comprises modeling a dependence of the deposition rate on a target life of the sputter target". The original support lies herein. In other words, the feature in question is comprised by the "monitoring" step of original claim 1, not the "modeling" step of original claim 1. Applicant is required to amend the claims in accordance with this original support, i.e., Applicant should amend this limitation to read: "modeling a dependence of the deposition rate on a target life of the sputter target".

Regarding claims 1, 11, 21, 31, 41, 51, and 61, applicant recites "modeling said dependence of the deposition rate comprising using sensor data relating to metal deposition processing for performing said modeling". This limitation was essentially added in four parts in the amendments filed 08/29/2003, 01/30/2004, 06/23/2006, and

01/12/2007. However, Examiner has been unable to find support in the original specification for the limitation, "modeling said dependence of the deposition rate comprising using sensor data relating to metal deposition processing for performing said modeling".

Regarding claims 62-65, there does not appear to be support in the original disclosure for "modeling changes in the deposition rate" (claim 62) or "modeling the changes over a predetermined life of the sputter target" (claim 63). Applicant is requested to point out where this support resides.

Applicant should adhere to the original language used in the original disclosure.

Claims 3, 5, 7-10, and 62-65 depend from claim 1, claims 13, 15, and 17-20 depend from claim 11, claims 23, 25, and 27-30 depend from claim 21, claims 32-40 depend from claim 31, claims 43, 45, and 47-50 depend from claim 41, and claims 52-60 depend from claim 51, and thus incorporate the same deficiencies.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 5, 7-11, 13, 15, 17-21, 23, 25, 27-41, 43, 45, and 47-65 are rejected

under 35 U.S.C. 102(b) as being anticipated by Turner U.S. Patent No. 4,166,783. For

example, Turner discloses:

1.   **A method comprising:**

monitoring consumption of a sputter target (e.g., col. 1 line 20: "target (cathode)") **to**

determine a deposition rate of a metal layer during metal deposition processing using

the sputter target (e.g., col. 3 lines 16-19: "The computer determines the deposition rate and

the initially required power in view of the elapsed usage of the particular cathode and controls

the system accordingly", Examiner Note (EN): *Turner's "cathode" corresponds to the claimed*

"sputter target".);

modeling a dependence of the deposition rate on at least one of deposition

plasma power and deposition time (e.g., col. 3 lines 23-32: "The deposition rate, power

dissipation and the aging characteristic are expressed by an empirically obtained function

specific to the cathode material which is stored in the computer; $f(P,r,\tau,\rho)=0$ where P is the

power, r is the deposition rate, τ is the integrated "age" of the cathode in kilowatt hours and ρ is

the pressure", col. 4 lines 59-61: "function relating deposition rate, cumulative usage time, and

said power"), **modeling said dependence of the deposition rate comprising using sensor**

data relating to metal deposition processing for performing said modeling (e.g., Fig. 2

#12: "VOLTAGE SENSE", Fig. 2 #18, "CURRENT SENSE", Fig. 2 #20: "PRESSURE SENSE");

modeling a dependence of the deposition rate based upon a target life of the

sputter target (e.g., col. 3 lines 23-32: "The deposition rate, power dissipation and the aging

characteristic are expressed by an empirically obtained function specific to the cathode material

which is stored in the computer; $f(P,r,\tau,\rho)=0$ where P is the power, r is the deposition rate, τ is

the integrated "age" of the cathode in kilowatt hours and ρ is the pressure", *EN: Turner's*

"integrated age of the cathode in kilowatt hours" corresponds to the claimed "target life of the

sputter target"); **and**

applying the deposition rate model to modify the metal deposition processing to

form the metal layer to have or approach a desired thickness (e.g., col. 3 lines 12-20:

"thickness of coating desired", "The computer determines the deposition rate and the initially

required power in view of the elapsed usage of the particular cathode and controls the system

accordingly", col. 3 lines 32-36, col. 4 lines 26-29).

[applied equally herein to claims 11, 21, 31, 41, 51, 52, 61]

3.   **The method of claim 1, wherein modeling the dependence of the deposition rate**

on at least one of the deposition plasma power and the deposition time comprises

modeling the dependence of the deposition rate on both the deposition plasma power

and the deposition time (e.g., col. 3 lines 23-32: "The deposition rate, power dissipation and

the aging characteristic are expressed by an empirically obtained function specific to the

cathode material which is stored in the computer; $f(P,r,\tau,\rho)=0$ where P is the power, r is the

deposition rate, τ is the integrated "age" of the cathode in kilowatt hours and ρ is the pressure",

EN: *The integrated age of the cathode τ is a function of deposition power and deposition time*

(kilowatt hours), col. 4 lines 59-61: "function relating deposition rate, cumulative usage time, and said power").

[applied equally herein to claims 13, 23, 33, 34, 43, 53, 54]

5.   **The method of claim 1, wherein applying the deposition rate model to modify the metal deposition processing comprises inverting the deposition rate model to determine at least one of the deposition plasma power** (e.g., col. 3 lines 12-20: "The computer determines the deposition rate and the initially required power in view of the elapsed usage of the particular cathode and controls the system accordingly", col. 3 lines 32-36: "the above equation may be solved to obtain the required power") **and the deposition time** (e.g., col. 3 lines 58-61: "altering production parameters such as the time for which the workpiece is to be subject to coating") **to form the metal layer to have the desired thickness.**

[applied equally herein to claims 15, 25, 35, 36, 45, 55, 56, 65]

7.   **The method of claim 3, wherein applying the deposition rate model to modify the metal deposition processing comprises inverting the deposition rate model to determine the deposition plasma power** (e.g., col. 3 lines 12-20: "The computer determines the deposition rate and the initially required power in view of the elapsed usage of the particular cathode and controls the system accordingly", col. 3 lines 32-36: "the above equation may be solved to obtain the required power") **and the deposition time** (e.g., col. 3 lines 58-61: "altering production parameters such as the time for which the workpiece is to be subject to coating") **to form the metal layer to have the desired thickness.**

[applied equally herein to claims 8, 17, 18, 27, 28, 37, 38, 47, 48, 57, 58]

9.   **The method of claim 1, wherein modeling the dependence of the deposition rate on the at least one of the deposition plasma power and the deposition time** (e.g., Fig. 1) **comprises fitting previously collected metal deposition processing data** (col. 3 line 25:

"empirically obtained function") **using at least one of polynomial curve fitting, least squares fitting, polynomial least squares fitting, non polynomial least squares fitting, weighted least squares fitting, weighted polynomial least squares fitting, and weighted non polynomial least squares fitting** (e.g., Fig. 1, EN: *Fig. 1 illustrates the modeling of the dependence of deposition rate on sputter target life (which is a function of deposition power and deposition time, i.e., kw-hrs) using least-squares fitting, i.e., the function curve is fitted to the data points.*).

[applied equally herein to claims 19, 29, 39, 49, 59]

10.   **The method of claim 2, wherein modeling the dependence of the deposition rate on the target life of the sputter target** (e.g., Fig. 1) **comprises fitting previously collected metal deposition processing data** (col. 3 line 25: "empirically obtained function") **using at least one of polynomial curve fitting, polynomial least-squares fitting, non-polynomial least-squares fitting, weighted least-squares fitting, weighted polynomial least-squares fitting, and weighted non-polynomial least-squares fitting** (e.g., Fig. 1, EN: *Fig. 1 illustrates the modeling of the dependence of deposition rate on sputter target life using least-squares fitting, i.e., the function curve is fitted to the data points.*).

[applied equally herein to claims 20, 30, 40, 50, 60]

32.   **The method of claim 31, wherein modeling the dependence of the deposition rate on the target life of the sputter target comprises modeling the dependence of the deposition rate on target lives of a plurality of previously processed sputter targets** (e.g., col. 2 lines 10-13).

Claims 1, 3, 5, 7-11, 13, 15, 17-21, 23, 25, 27-41, 43, 45, and 47-65 are rejected

under 35 U.S.C. 102(b) as being anticipated by Actor et al. U.S. Patent No. 5,478,455.

For example, Actor et al. discloses:

1.   **A method comprising:**

monitoring consumption of a sputter target to determine a deposition rate of a

metal layer during metal deposition processing using the sputter target (e.g., col. 2 lines

50-56: "maintain a constant deposition rate by monitoring the age of the sputter target", col. 9

lines 64-67: "monitoring the life of the sputter target")

modeling (e.g., col. 6 lines 13-34, col. 7 lines 29-40: "$AF=Y_0/(Y_0-m_Tx)$") **a dependence**

of the deposition rate (e.g., col. 6 lines 13-34, col. 7 lines 29-40: "m_T is the slope of the curve

of deposition rate versus target age at time T", Examiner Note (EN): *m_T is a function of*

deposition rate) **on at least one of deposition plasma power and deposition time** (e.g., col.

6 lines 13-34, col. 7 lines 29-40: "x is the age of the collimator", col. 7 lines 51-53: "the computer

calculates the age of the collimator by multiplying the deposition power and the deposition time

used during sputtering of the substrate", EN: *x is a function of deposition power and deposition*

time), **modeling said dependence of the deposition rate comprising using sensor data**

relating to metal deposition processing for performing said modeling (e.g., col. 4 line 44:

"sensors", col. 5 line 7: "pressure monitoring means", col. 6 line 34: "empirical measurement",

col. 7 lines 47-49: "measuring the elapsed time of sputtering");

modeling (e.g., col. 7 lines 29-40: "$AF=Y_0/(Y_0-m_Tx)$") **a dependence of the deposition**

rate based upon a target life of the sputter target (e.g., col. 6 lines 30-34: "The formula may

also compensate for changes in the deposition rate due to erosion of the sputter target. The

compensation formula may also be developed by using suitable computer modeling techniques

rather than by empirical measurement", col. 7 lines 29-40: "m_T is the slope of the curve of

deposition rate versus target age at time T", "the formula...may be developed by computer modeling", EN: m_T is a function of deposition rate and sputter target life or age, col. 8 lines 41-49); and

applying the deposition rate model to modify the metal deposition processing to form the metal layer to have or approach a desired thickness (e.g., col. 6 lines 13-34: "control sputtering source 10 by periodically adjusting the value of a selected sputtering parameter during deposition of a film on a series of wafers. The adjustments are performed in accordance with a predetermined compensation formula contained in software...to cause the sputtering source to deposit film at a predetermined thickness").

[applied equally herein to claims 11, 21, 31, 41, 51, 52, 61]

3.   **The method of claim 1, wherein modeling** (e.g., col. 7 lines 29-40: "AF=Y_0/(Y_0-m_Tx)") **the dependence of the deposition rate** (e.g., col. 6 lines 13-34, col. 7 lines 29-40: "m_T is the slope of the curve of deposition rate versus target age at time T", Examiner Note (EN): m_T is a function of deposition rate) **on at least one of the deposition plasma power and the deposition time comprises modeling the dependence of the deposition rate on both the deposition plasma power and the deposition time** (e.g., col. 6 lines 13-34, col. 7 lines 29-40: "x is the age of the collimator", col. 7 lines 51-53: "the computer calculates the age of the collimator by multiplying the deposition power and the deposition time used during sputtering of the substrate", EN: x is a function of deposition power and deposition time).

[applied equally herein to claims 13, 23, 33, 34, 43, 53, 54]

5.   **The method of claim 1, wherein applying the deposition rate model to modify the metal deposition processing comprises inverting the deposition rate model to determine that at least one of the deposition plasma power** (e.g., col. 6 lines 13-34: "the deposition power is increased after the processing of each wafer", claim 1, claim 10) **and the deposition**

time (e.g., col. 6 lines 13-34: "the deposition time is increased after the processing of each wafer", claim 1, claim 11) **to form the metal layer to have the desired thickness** (e.g., col. 6 lines 13-34: "control sputtering source 10 by periodically adjusting the value of a selected sputtering parameter during deposition of a film on a series of wafers. The adjustments are performed in accordance with a predetermined compensation formula contained in software...to cause the sputtering source to deposit film at a predetermined thickness").

[applied equally herein to claims 15, 25, 35, 36, 45, 55, 56, 65]

7.   **The method of claim 3, wherein applying the deposition rate model to modify the metal deposition processing comprises inverting the deposition rate model to determine the deposition plasma power** (e.g., col. 6 lines 13-34: "the deposition power is increased after the processing of each wafer", claim 1, claim 10) **and the deposition time** (e.g., col. 6 lines 13-34: "the deposition time is increased after the processing of each wafer", claim 1, claim 11) **to form the metal layer to have the desired thickness** (e.g., col. 6 lines 13-34: "control sputtering source 10 by periodically adjusting the value of a selected sputtering parameter during deposition of a film on a series of wafers. The adjustments are performed in accordance with a predetermined compensation formula contained in software...to cause the sputtering source to deposit film at a predetermined thickness").

[applied equally herein to claims 8, 17, 18, 27, 28, 37, 38, 47, 48, 57, 58]

9.   **The method of claim 1, wherein modeling the dependence of the deposition rate on the at least one of the deposition plasma power and the deposition time comprises fitting previously collected metal deposition processing data using at least one of polynomial curve fitting, least squares fitting, polynomial least squares fitting, non polynomial least squares fitting, weighted least squares fitting, weighted polynomial**

least squares fitting, and weighted non polynomial least squares fitting (e.g., col. 6 lines

13-52: "polynomial expression or an exact fit analytic expression", col. 8 lines 40-49).

[applied equally herein to claims 19, 29, 39, 49, 59]

10.   The method of claim 2, wherein modeling the dependence of the deposition rate

on the target life of the sputter target comprises fitting previously collected metal

deposition processing data using at least one of polynomial curve fitting, least squares

fitting, polynomial least squares fitting, non polynomial least squares fitting, weighted

least squares fitting, weighted polynomial least squares fitting, and weighted non

polynomial least squares fitting (e.g., col. 8 lines 41-49: "polynomial or exact fit formula", col.

8 lines 40-49).

[applied equally herein to claims 20, 30, 40, 50, 60]

32.   The method of claim 31, wherein modeling the dependence of the deposition rate

on the target life of the sputter target comprises modeling the dependence of the

deposition rate on target lives of a plurality of previously processed sputter targets (e.g.,

col. 8 line 40 – col. 9 line 7: "the sputtering system computer stores multiple formulas for

calculating the adjustment factor, one for each interval").

Claims 1, 3, 5, 7-8, 11, 13, 15, 17-18, 21, 23, 25, 27-28, 31-38, 41, 43, 45, 47-48, 51-58, and 61-65 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Smith, T.H., Boning, D.S., Stefani, J. and Butler, S.W. "Run by Run Advanced Process Control of Metal Sputter Deposition". IEEE Transactions on Semiconductor Manufacturing 11.2 (1998): 276-284, hereinafter referred to as "Smith et al.".

See Section III.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 9, 10, 19, 20, 29, 30, 39, 40, 49, 50, and 59-60 are rejected under 35

U.S.C. 103(a) as being unpatentable over Smith et al. as applied to claims 1, 11, 21, 31,

41, and 51 above, and further in view of Actor et al. (or Turner).

Smith et al. does not appear to explicitly disclose that the modeling the

dependence of the deposition rate on the target life of the sputter target or on the at

least one of the deposition plasma power and the deposition time comprises fitting

previously collected metal deposition processing data using at least one of polynomial

curve fitting, least squares fitting, polynomial least squares fitting, non polynomial least

squares fitting, weighted least squares fitting, weighted polynomial least squares fitting,

and weighted non polynomial least squares fitting.

Actor et al. discloses a method for controlling a collimated sputtering source

wherein modeling the dependence of the deposition rate on the target life of the sputter

target and on at least one of the deposition plasma power and the deposition time

comprises fitting previously collected metal deposition processing data using at least

one of polynomial curve fitting, least squares fitting, polynomial least squares fitting, non

polynomial least squares fitting, weighted least squares fitting, weighted polynomial

least squares fitting, and weighted non polynomial least squares fitting (e.g., col. 6 lines

13-52: "polynomial expression or an exact fit analytic expression", col. 8 lines 40-49).

Likewise, Turner discloses a sputtering control system wherein modeling the

dependence of the deposition rate on the target life of the sputter target and on at least

one of the deposition plasma power and the deposition time (e.g., Fig. 1) comprises

fitting previously collected metal deposition processing data (col. 3 line 25: "empirically

obtained function") using at least one of polynomial curve fitting, least squares fitting,

polynomial least squares fitting, non polynomial least squares fitting, weighted least

squares fitting, weighted polynomial least squares fitting, and weighted non polynomial

least squares fitting (e.g., Fig. 1, EN: Fig. 1 illustrates the modeling of the dependence

of deposition rate on sputter target life (which is a function of deposition power and

deposition time, i.e., kw-hrs) using least-squares fitting, i.e., the function curve is fitted to

the data points.).

Smith et al. and Actor et al. (and Turner) are analogous art since all pertain to

sputtering control system.

Therefore, it would have been obvious to one having ordinary skill in the art at

the time the invention was made to modify Smith et al. with Actor et al. (or Turner) since

Actor et al. (and Turner) disclose that polynomial curve fitting is a reliable way to model

historical data.

Response to Arguments

Applicant's arguments, see page 16, filed 01/12/2007, with respect to the objection to claims 4, 6, 10, 14, 16, 20, 24, 26, 30, 44, 46, 50, and 61 have been fully considered and are persuasive. The objections to these claims have been withdrawn.

Applicant's arguments, see pages 16-17, filed 01/12/2007, with respect to the rejection of claims 1, 3-11, 13-21, 23-41, and 43-61 under 35 USC 112 1st paragraph (written description) have been fully considered but they are mostly not persuasive. Certain deficiencies remain, as detailed in the rejection above.

Applicant's arguments, see pages 17-19, filed 01/12/2007, with respect to the rejection of claims 1, 3-11, 13-21, 23-41, and 43-61 under 35 U.S.C. 112 2nd paragraph as being indefinite have been fully considered. The rejection has been withdrawn since Applicant admits that the "target age", which is measured in kilo watt hours (KWH), as described by Actor and Turner, *may* be equated to Applicant's claimed "target life" described as a measure of the "degree of sputter target consumption". See page 18, lines 16-18 of Arguments filed 01/12/2007.

The rejection of claims 41 and 43-50 under 35 U.S.C. 112 2nd paragraph, as being incomplete for omitting essential elements, has been withdrawn since the instructions or software that would enable the "system" to achieve the recited functionality is considered inherent to the claimed "system".

The rejection of claims 51-60 under 35 U.S.C. 101 has been withdrawn since the specification does not appear to disclose that the "means for" can be software per se. For example, on page 17 lines 3-16 of the specification, Applicant discloses that various

functions of the invention can be implemented in software encoded on a computer-readable, program storage medium.

Applicant's arguments, see pages 19-24, filed 01/12/2007, with respect to the rejection of claims 1, 3-11, 13-21, 23-41, and 43-61 under 35 U.S.C. 102(b) as being anticipated by Actor et al. have been fully considered but they are not persuasive, and are largely moot in light of the modified grounds of rejection. Examiner has provided a more detailed mapping of the Actor et al. reference above, clearly pointing out where Actor et al. is asserted to teach the various claimed features. As such, Applicant's is respectfully requested to respond to said mapping in any subsequent arguments.

Applicant's arguments, see pages 24-29, filed 01/12/2007, with respect to the rejection of claims under 35 U.S.C. 102(b) as being anticipated by Turner have been fully considered but they are not persuasive.

Applicant's arguments, see pages 29-30, filed 01/12/2007 with respect to the rejection of claims 1, 3-11, 13-21, 23-41, and 43-61 under 35 U.S.C. 103(a) as being unpatentable over Actor et al. in view of Iturralde have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments, see pages 30-32, filed 01/12/2007 with respect to the rejection of claims 3-4, 7-8, 13-14, 17-18, 23-24, 27-28, 33-34, 37-38, 43-44, 47-48, 53-54, 57-58, and 61 under 35 U.S.C. 103(a) as being unpatentable over Turner in view of Sullivan have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments, see page 32, filed 01/12/2007 with respect to the rejection of claims 9, 19, 29, 39, and 59 under 35 U.S.C. 103(a) as being unpatentable over Turner have been considered but are moot in view of the new ground(s) of rejection.

Regarding the comments on page 33 of the response file 01/12/2007, Examiner did not intend to indicate any allowable subject matter on page 2 of the previous Office Action (9/12/06. The claims were objected to for depending on *cancelled* claims, not for depending on *rejected* claims. Examiner is sorry for any confusion.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan A. Jarrett whose telephone number is (571) 272-3742. The examiner can normally be reached on 10:00-6:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Art Unit 2125

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